

App. No. 10/628,634
Attorney Docket No. 3206.2.2 NP

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Amendments to the Claims

1. (Original) A node-and-strut structure comprising:

a set of at least six vertebrae each including one left-hand strut having a proximal portion and a distal portion, one right-hand strut having a proximal portion and a distal portion, and one primary node rigidly engaging the left-hand strut's proximal portion and the right-hand strut's proximal portion, a primary axis passing through each of the primary nodes, the primary nodes each including at least 1% metal by weight, the left-hand struts all being nominally mutually parallel, the right-hand struts all being nominally mutually parallel also;

several left-hand nodes each bearing against a respective one of said left-hand struts' distal portions such that a left-hand axis lying in a baseplane with the primary axis passes through each of the left-hand nodes, the left-hand axis forming with each of the left-hand struts an acute angle about equal to $jx20.9^\circ + kx31.7^\circ + mx36^\circ + nx37.4^\circ$, where j, k, m, and n are each an integer ≥ 0 ; and

several right-hand nodes each bearing against a respective one of said right-hand struts' distal portions such that a right-hand axis parallel to the baseplane passes through each of the right-hand nodes, the right-hand axis forming with each of the right-hand struts an acute angle about equal to $px20.9^\circ + qx31.7^\circ + rx36^\circ + sx37.4^\circ$, where p, q, r, and s are each an integer ≥ 0 .

2. (Currently Amended) The node-and-strut structure of claim 1 in which said primary, left-hand and right-hand nodes each primarily comprise an iron-containing alloy.

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3. (Currently Amended) The node-and-strut structure of claim 1 in which said primary, left-hand and right-hand nodes each include at least 1% metal by weight.
4. (Original) The node-and-strut structure of claim 1 in which said struts each include at least 1% carbon fiber by weight.
5. (Original) The node-and-strut structure of claim 1 in which all of said acute angles that are formed with the left-hand axis are within 0.4° of $jx20.9^\circ + kx31.7^\circ + mx36^\circ + nx37.4^\circ$.
6. (Original) The node-and-strut structure of claim 1 in which said left-hand and right-hand nodes each have a metallic surface bearing against a respective one of said distal portions.
7. (Original) The node-and-strut structure of claim 1 in which the left-hand and right-hand struts of each of the vertebrae form a primary angle there between that is nominally equal to an acute angle of $bx20.9^\circ + dx31.7^\circ + ex35.3^\circ + fx36^\circ$, where b, d, e, and f are each an integer ≥ 0 .
8. (Original) The node-and-strut structure of claim 1 in which the left-hand and right-hand struts of each of the vertebrae form a primary angle therebetween that is nominally complementary to an acute angle of $bx20.9^\circ + dx31.7^\circ + ex35.3^\circ + fx36^\circ$, where b, d, e, and f are each an integer ≥ 0 .

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9. (Original) The node-and-strut structure of claim 1 in which the left-hand and right-hand struts of each of the vertebrae form a primary angle therebetween that is nominally complementary to an acute angle of $bx20.9^\circ + dx31.7^\circ + ex35.3^\circ + fx36^\circ$, where b is a positive integer and d, e, and f are each an integer ≥ 0 .

10. (Original) The node-and-strut structure of claim 1 in which the left-hand and right-hand struts of each of the vertebrae form a primary angle therebetween that is nominally complementary to an acute angle of $bx20.9^\circ + dx31.7^\circ + ex35.3^\circ + fx36^\circ$, where d is a positive integer and b, e, and f are each an integer ≥ 0 .

11. (Original) The node-and-strut structure of claim 1 in which the left-hand and right-hand struts of each of the vertebrae form a primary angle therebetween that is nominally complementary to an acute angle of $bx20.9^\circ + cx30^\circ + dx31.7^\circ + ex35.3^\circ + fx36^\circ + gx37.4^\circ$, where b, c, d, e, f, and g are each an integer ≥ 0 .

12. (Original) The node-and-strut structure of claim 1 in which the set of vertebrae are nominally regularly spaced.

13. (Original) The node-and-strut structure of claim 1 in which $j > 0$.

14. (Original) The node-and-strut structure of claim 1 in which $k > 0$.

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15. (Original) The node-and-strut structure of claim 1 in which $j=p=0$.
16. (Original) The node-and-strut structure of claim 1 in which $k=q=0$.
17. (Original) The node-and-strut structure of claim 1 in which $m=r=0$.
18. (Original) The node-and-strut structure of claim 1, further comprising several additional strut ends each bearing against a corresponding one of the left-hand nodes.
19. (Original) The node-and-strut structure of claim 18 in which the number of said additional strut ends is exactly T, where T is at least 4.
20. (Original) The node-and-strut structure of claim 1 in which the set of vertebrae includes at least eight vertebrae.
21. (Original) The node-and-strut structure of claim 1, further including several inter-primary struts each coupled to a corresponding pair of the primary nodes.
22. (Currently Amended) The node-and-strut structure of claim 1, in which said primary, left-hand and right-hand nodes and several additional nodes are all positioned exteriorly so as to form an oblong shape substantially resembling a tube having a $a[n]$ elliptical polygonal cross section, further comprising several other, interiorly-positioned nodes.

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23. (Original) A method of making a node-and-strut structure comprising steps of:

(a) assembling a set of at least six vertebrae each including one left-hand strut having a proximal portion and a distal portion, one right-hand strut having a proximal portion and a distal portion, and one primary node rigidly engaging the left-hand strut's proximal portion and the right-hand strut's proximal portion, a primary axis passing through each of the primary nodes, the primary nodes each including at least 1% metal by weight, the left-hand struts all being nominally mutually parallel, the right-hand struts all being nominally mutually parallel also;

(b) bringing several left-hand nodes each to bear against a respective one of said left-hand struts' distal portions such that a left-hand axis lying in a baseplane with the primary axis passes through each of the left-hand nodes, the left-hand axis forming with each of the left-hand struts an acute angle about equal to $jx20.9^\circ + kx31.7^\circ + mx36^\circ + nx37.4^\circ$, where j, k, m, and n are each an integer ≥ 0 ; and

(c) bringing several right-hand nodes each to bear against a respective one of said right-hand struts' distal portions such that a right-hand axis parallel to the baseplane passes through each of the right-hand nodes, the right-hand axis forming with each of the right-hand struts an acute angle about equal to $px20.9^\circ + qx31.7^\circ + rx36^\circ + sx37.4^\circ$, where p, q, r and s are each an integer ≥ 0 .

24. (Currently Amended) The method of claim 23, further including wherein at least three struts are not nominally mutually coplanar and further including a triangulation step
(d) of adding to said node-and-strut structure several additional nodes and several

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additional struts so that all of the nodes each bear against at least three of the struts that are not nominally mutually coplanar.

25. (Original) The method of claim 24 in which said struts each have an actual length that is nominally included in a predefined length set consisting of 6 lengths.